



## SPARK-GS and InterGS: New Coding Tools Exploration for MPEG Gaussian Splatting Coding

**SPEAKER** Prof. Zhu Li

Professor  
Dept of Computer Science and  
Electrical Engineering, University of  
Missouri - Kansas City

**DATE** 17 May, 2026 (Sun)

**TIME** 2:00 PM - 3:00 PM

**VENUE** CS Seminar Room, Y6405, 6th Floor,  
Yellow Zone, Yeung Kin Man Academic  
Building, City University of Hong Kong,  
83 Tat Chee Avenue, Kowloon Tong

### ABSTRACT

Gaussian Splatting (GS) is a new 3D content representation scheme that combines explicit geometry with trainable color attributes, while have parallelizable rendering pipeline for fast presentation. GS opens up many new opportunities in immersive visual communication applications. However the volume of GS data file is huge and need an efficient compression solution. MPEG established a new joint Ad Hoc Group on Gaussian Splatting Coding (GSC) to exploit latest advances in GS processing and coding tools. In this talk new INTRA and INTER coding schemes are presented. SPARK-GS is a kd-tree decomposition and leaf node tokenization framework that utilizes the PCA-DCT to pre-quantize the GS attributes, and allow for leaf node level Morton windowed intra-prediction scheme. Bitstream is generated from resulting kd-tree sampled GS thumbnails and leaf node residuals. Initial results demonstrated substantial coding gains for forward facing data set w.r.t the current GPCC v2 anchor; InterGS is an INTER predictive coding scheme that perform k-NN search in reference GS frame and utilizes a light weight transformer predictor and k-NN nearest feature predictor for motion compensation. BD-rate gains are solid while complexity is minimum. Both work is now part of the Joint Experiment (JE) 6.3 in MPEG.

### BIOGRAPHY

Zhu Li is a professor with the Dept of Computer Science & Electrical Engineering, University of Missouri, Kansas City(UMKC), and the director of NSF I/UCRC Center for Big Learning (CBL) at UMKC. He received his PhD in Electrical & Computer Engineering from Northwestern University in 2004. He was the AFRL summer faculty at the UAV Research Center, US Air Force Academy (USAFA), 2016-18, 2020-24. He was Senior Staff Researcher with the Samsung Research America's Multimedia Standards Research Lab in Richardson, TX, 2012-2015, Senior Staff Researcher with FutureWei (Huawei) Technology's Media Lab in Bridgewater, NJ, 2010~2012, Assistant Professor with the Dept of Computing, the Hong Kong Polytechnic University from 2008 to 2010, and a Principal Staff Research Engineer with the Multimedia Research Lab (MRL), Motorola Labs, from 2000 to 2008. His research interests include point cloud and light field compression, graph signal processing and deep learning in the next gen visual compression, remote sensing, image processing and understanding. He has 50+ issued US patents, 200+ publications in book chapters, journals, and conferences in these areas. He is an IEEE senior member, Associate Editor-in-Chief (2020~23) and Senior Area Editor (2024~) for IEEE Trans on Circuits & System for Video Tech, Associate Editor for IEEE Trans on Image Processing(2020~), IEEE Trans.on Multimedia (2015-18), IEEE Trans on Circuits & System for Video Technology(2016-19). His team won the AFRL sponsored Perception Beyond Visual Spectrum (PBVS) grand challenge at CVPR 2023 on SAR image recognition, and thermo image super-resolution in 2024. He also received the Best Paper Award at IEEE Int'l Conf on Multimedia & Expo (ICME), Toronto, 2006, and IEEE Int'l Conf on Image Processing (ICIP), San Antonio, 2007.

**All are welcome!**



In case of questions, please contact Prof. WANG Shiqi at [shiqwang@cityu.edu.hk](mailto:shiqwang@cityu.edu.hk), or visit the CS Departmental Seminar Web at <https://www.cs.cityu.edu.hk/events/cs-seminars/recent-cs-colloquiums>.